Cold Stress

Cold and/or wet environmental conditions can place workers at risk of cold-related illness.

Cold Stress can occur in any type of cold environment, urban, suburban, rural or wilderness. Temperature, humidity and exposure time are the determining factors.

Workers should be protected from exposure to cold so that the central (core) body temperature does not fall below 97°F.

Lower body temperatures will likely result in reduced mental alertness, reduction in rational decision-making, or loss of consciousness with the threat of death.

To prevent such occurrences, the following measures will be implemented:

- Workers will wear warm clothing (e.g., gloves and heavy socks) when the air temperature is below 45°F.

- Protective clothing, such as insulated coveralls or other winter-weight coveralls, may be used to shield employees from the wind.

When the air temperature is below 35°F, workers will wear the following warm clothing: insulated suits, such as whole-body thermal underwear; wool socks or polypropylene socks to keep moisture off of the feet; insulated gloves; insulated boots; insulated head cover, such as a hard hat, winter liner, or knit cap; and an insulated jacket, with a wind- and water-resistant outer layer.

At air temperatures below 35°F, the following work practices must be implemented:

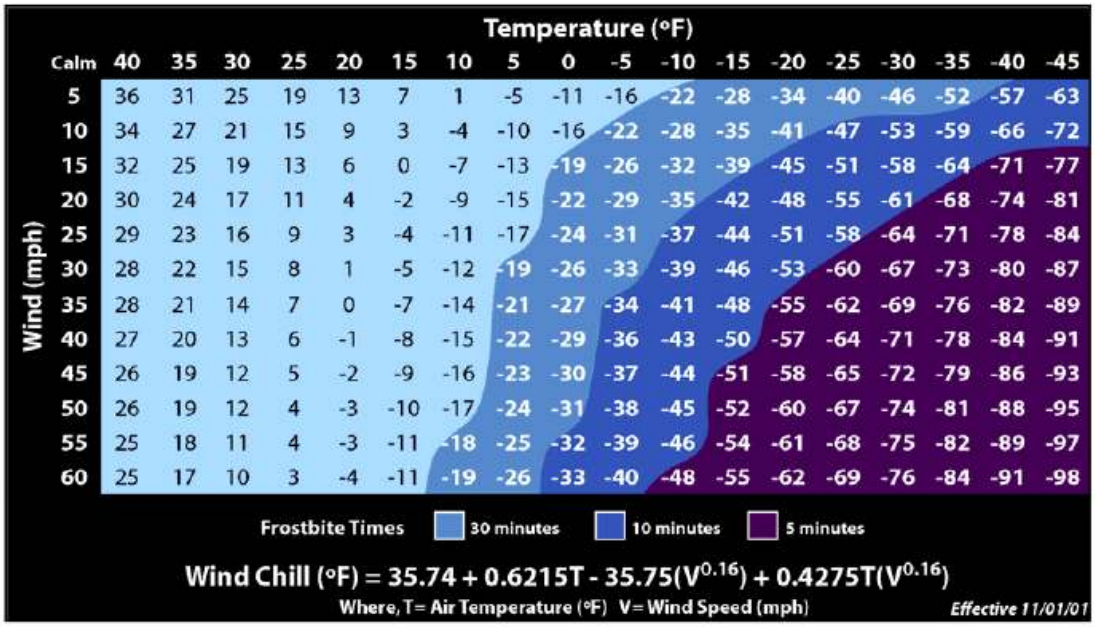
- If the clothing of a worker might become wet on the job, the worker will wear an outer layer of clothing that is water impermeable.

- If a worker's underclothing becomes wet in any way, the worker will change into dry clothing immediately. If the clothing becomes wet from sweating (and the employee is comfortable), the employee may finish the task before changing into dry clothing.

- Workers will be provided with a warm (65°F or above) break area.

- Work/break time regiment will be adjusted so workers can sufficiently warm themselves before being re-exposed to the cold.

Wind Chill Chart



The buddy system will be practiced at all times.

Any worker observed shivering severely will leave the work area immediately to seek heat and shelter.

Workers will dress in layers, with thinner, lighter clothing worn next to the body.

Workers will avoid overdressing when going into warm areas or when performing strenuous activities.

Hypothermia can occur whenever temperatures are below 45°F, and is most common during wet, windy conditions, with temperatures between 30° and 40°F.

The principal cause of hypothermia in these conditions is loss of insulating properties of clothing due to moisture, coupled with heat loss due to wind and evaporation of moisture on the skin.

Hypothermia is defined as a lowering of the central (core) body temperature.

General hypothermia, the most life-threatening cold injury, affects the entire body system.

Once the body temperature is lowered to 95°F, thermal control is lost and the body is no longer in thermal balance.

Coma occurs when the core temperature reaches approximately 79°F.

Death can occur within 2 hours of the first signs and symptoms.

The general symptoms of hypothermia are usually exhibited in five stages:

- Shivering.
- Apathy, listlessness, sleepiness, and (sometimes) rapid cooling of the body.
- Unconsciousness, glassy stare, and slow pulse and respiratory rate.
- Freezing of the extremities.
- Death.

If an APHIS employee is believed to have suffered any form of hypothermia, they MUST have medical attention before they are allowed to work again in a cold environment.

Frostbite, the other illness associated with cold exposure, is the freezing of body tissue, which ranges from superficial freezing of surface skin layers, to deep-freezing of underlying tissue. Frostbite will only occur when ambient temperatures are below 32°F (0°C). The risk of frostbite increases as the temperature drops and wind speed increases. Frostbite usually affects the extremities.

Any area of skin affected by frostbite will appear white. The skin will feel waxy or hard. The person suffering from the frostbite will have no feeling in the affected area.

To treat frostbite, remove the person from the cold environment immediately. Gently re-warm the affected area, taking care not to rub the area. If the frostbite affects a large area, blistering is observed, or the frostbite feels to extend in to the deeper parts of the skin, seek medical attention immediately.